Northwest Power and Conservation Council

Analysis of Rates * and Residential Bills

State of Washington Energy Strategy Technical Group

July 30, 2010

*-Average Regional Revenue Requirement Per MWH of Sales

Today's presentation covers

- Rates* Calculation Methodology used in the 6th Plan
- Residential Bill Calculation Methodology
- Comparison across scenarios

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Key Determinants

- Costs (Revenue Requirements) – ($)
- Electricity Sales – (MWh)
- Typical Household Electricity Use – (MWh)
- Real Price (constant 2006 dollar)- impact of inflation is removed from the calculations.

- Price or Rate = Costs divided by Sales
- Bill = Price times Household Use

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Calculation of Average Rates*

Take average annual costs from Regional Portfolio Model
Add fixed cost of existing system
Add conservation expenses
    subtract customers' contribution to Energy Efficiency
    Add compensate for Power Act 10% credit for EE,
($2.5 million dollars/MWa of first year utility cost)
Calculate the Utility Revenue Requirement
Divide by MWh of regional sales net of conservation

* What is presented as rate is the average of 750 different future Average Revenue Requirement per unit of sales at a regional level.

These calculations do not represent any particular utility's situation. All costs shown are in constant 2006 dollars

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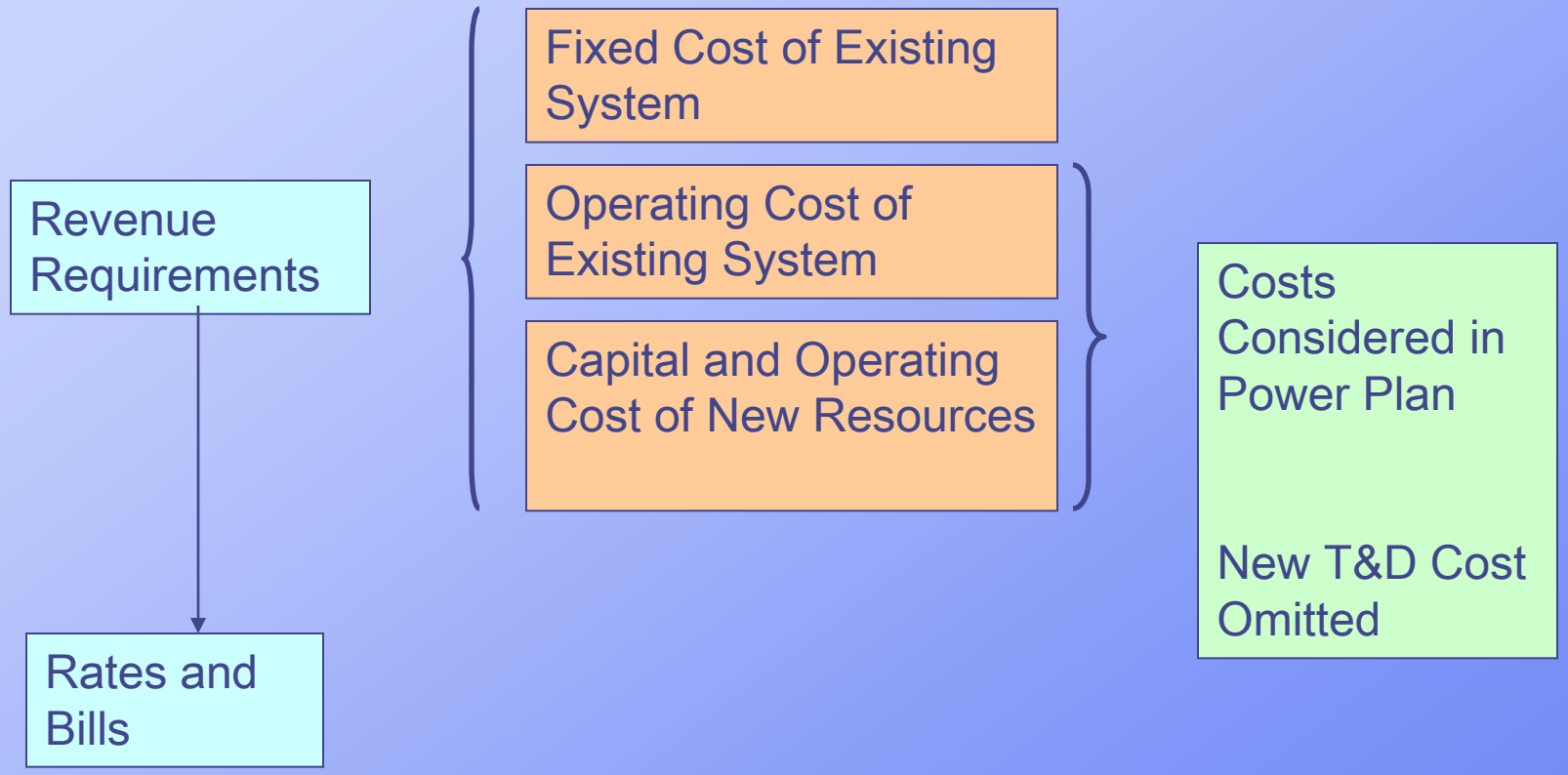
Components of Revenue Requirements



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Bills and rates vary across Scenarios

Chapter 10 name	Carbon Penalty?	RPS Resources included?	Conservation included?	Description
Carbon Risk	r.v.	Y	Y	"$0-$100/ton carbon risk" case or Carbon Risk scenario
No Conservation	r.v.	Y	N	No conservation -- use CCCTs and SCCTs instead
Coal Retirement	r.v.	Y	Y	Meet CO2 targets with coal plant curtailment
$45 Carbon	$45/ton	Y	Y	Meet CO2 targets with fixed CO2 penalty
Current Policy	Y	Y	Y	Basecase without carbon penalty
No RPS	r.v.	N	Y	No RPS, **renewables are given REC value**
No Policy	N	N	Y	No carbon penalty, no new coal, no RPS, **renewables are given REC value**
Lower Snake Dam Removal	r.v.	Y	Y	Breaching the Lower Snake Dams

r.v. indicates a random variable. CO2 cost is model stochasitcally with the 750 futures.

More information on cases is available in Chapter 10 or the Plan.

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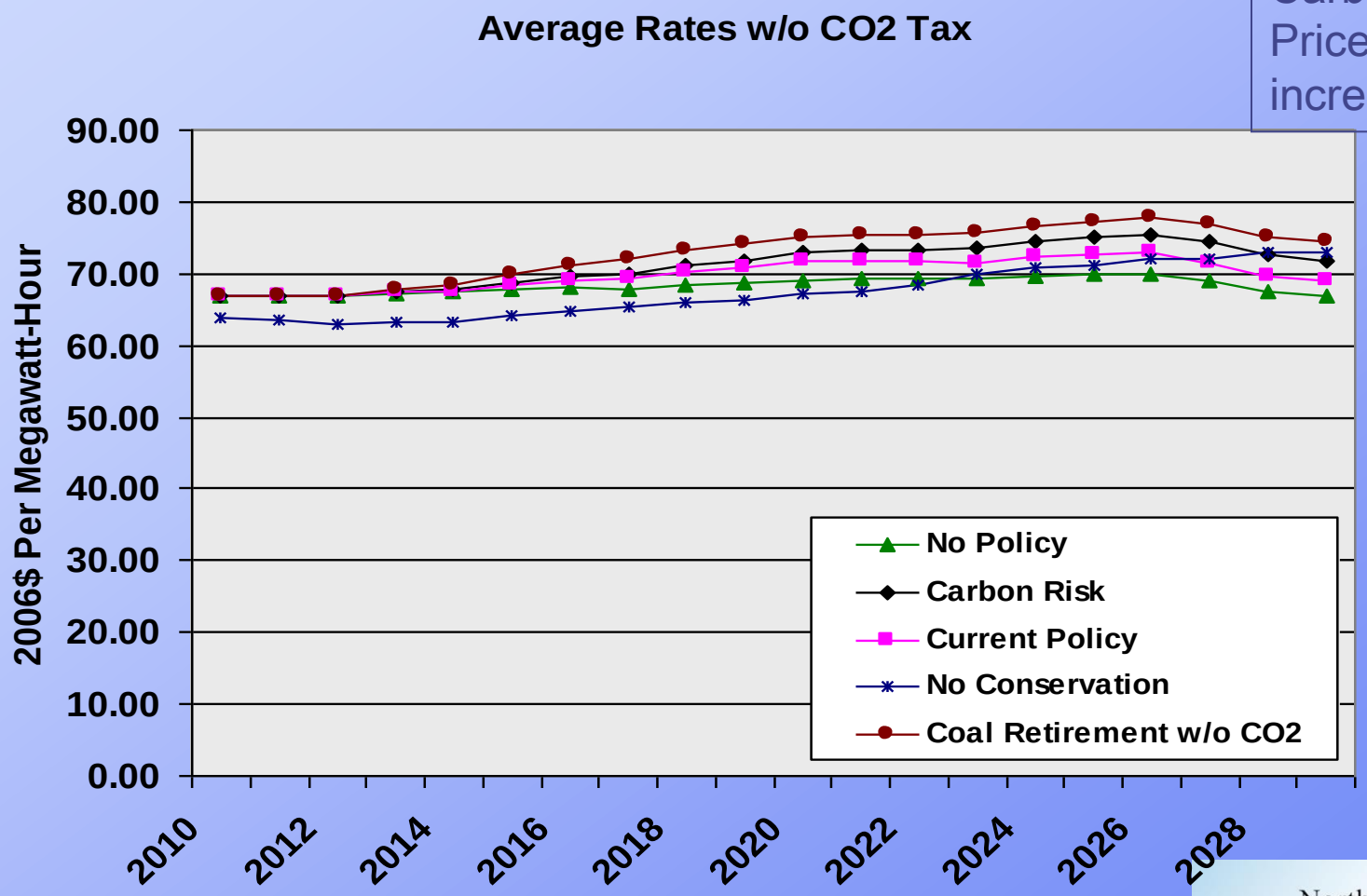
Electricity Prices in Plan Scenarios

Carbon Risk Prices increase 7%



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Residential Bill* Calculation Methodology

- Utility revenue requirements is taken from Rates analysis (above)
- Take 45% of this revenue requirement
  - 45% is share of revenue requirement from residential sector
- Divide it by number of households in the region to get annual bill
- Divide the annual bill by 12 to get monthly bills
- *- Bill calculation uses costs from average of 750 futures paths.
- Average regional values and will not represent any single customer's experience.

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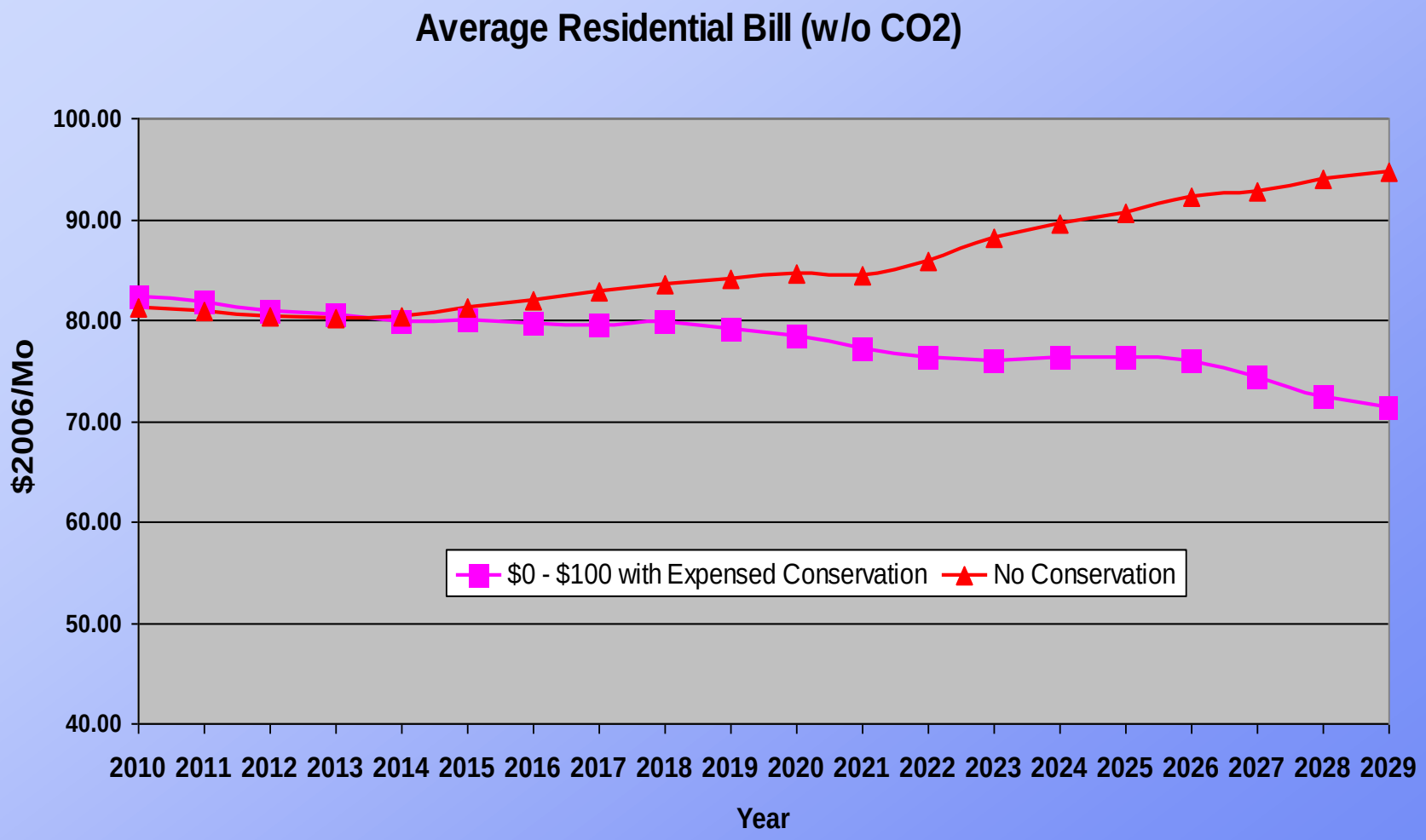
Comparison of Monthly Residential Bills with and without Conservation 2010-2030



$0-$100 case is same as Carbon Risk case

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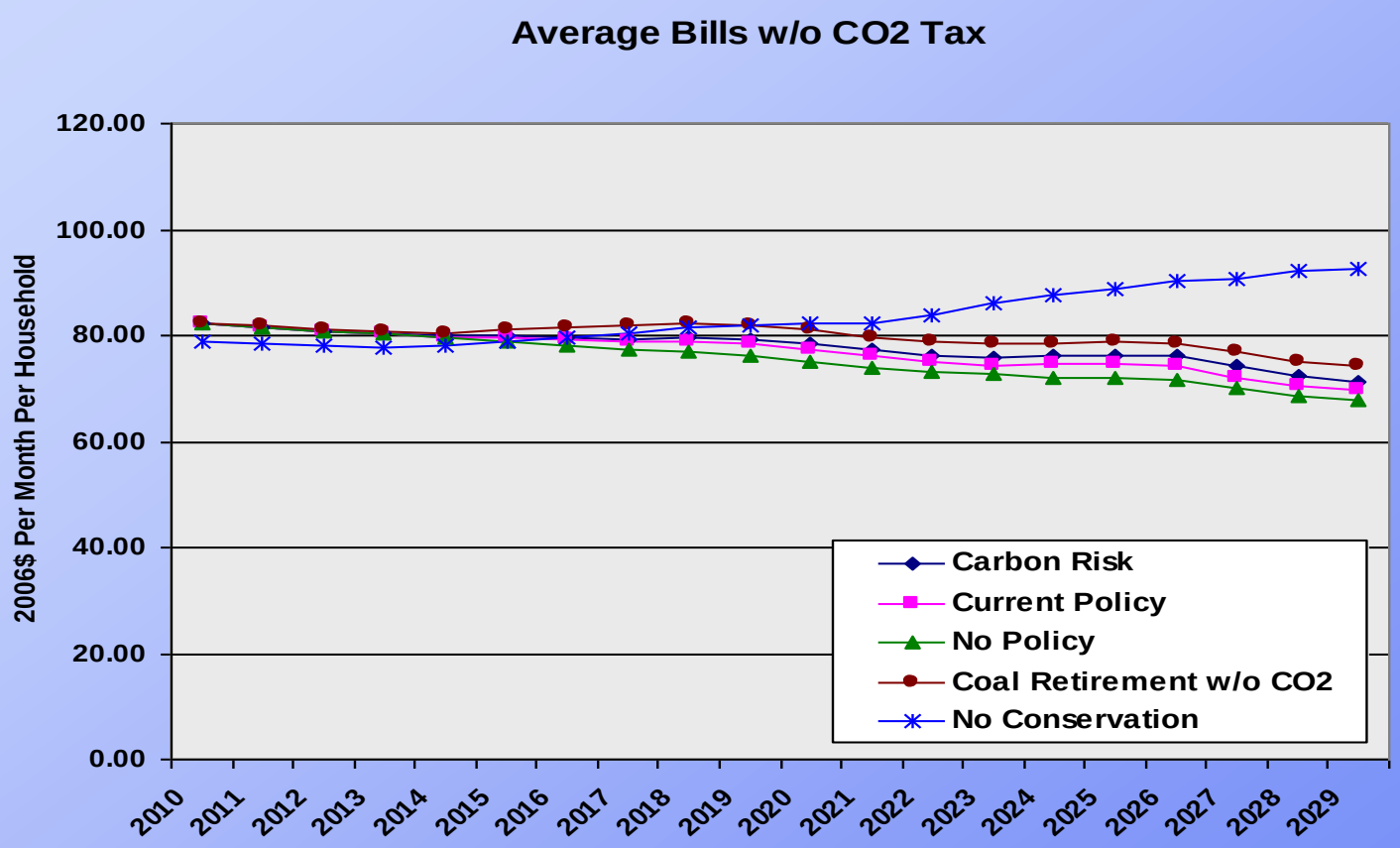
Electricity Bills in Plan Scenarios



Carbon Risk Bills Decrease 15%

Additional information on annual bills available from Appendix O of the 6th Plan.

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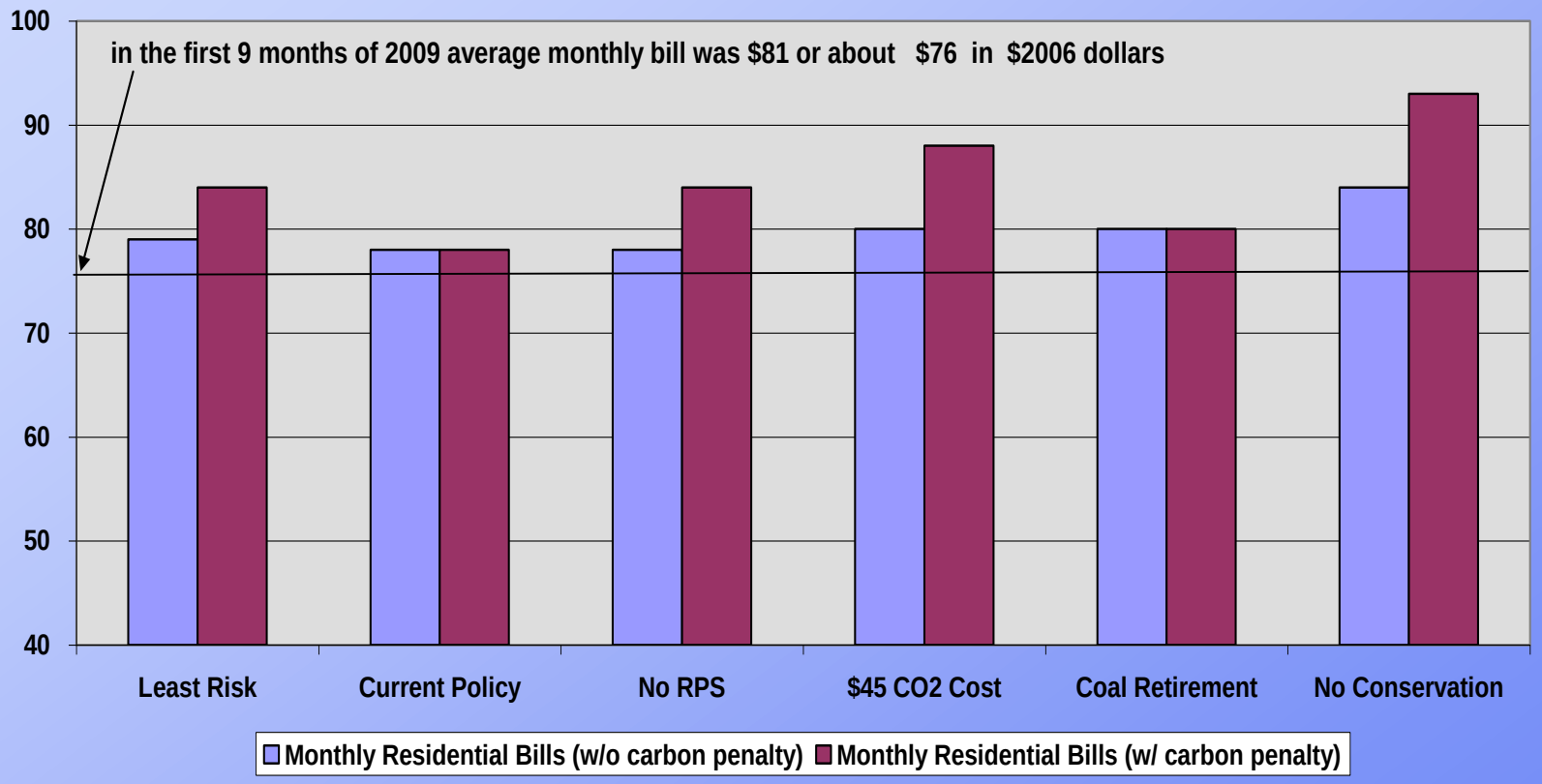
Comparison of *Levelized* Residential Bills
(this is different than annual values for bill)



Least Risk case is the same as Carbon Risk case

If you want all the annual and levelized numbers for all scenarios , please read appendix O of the Power Plan

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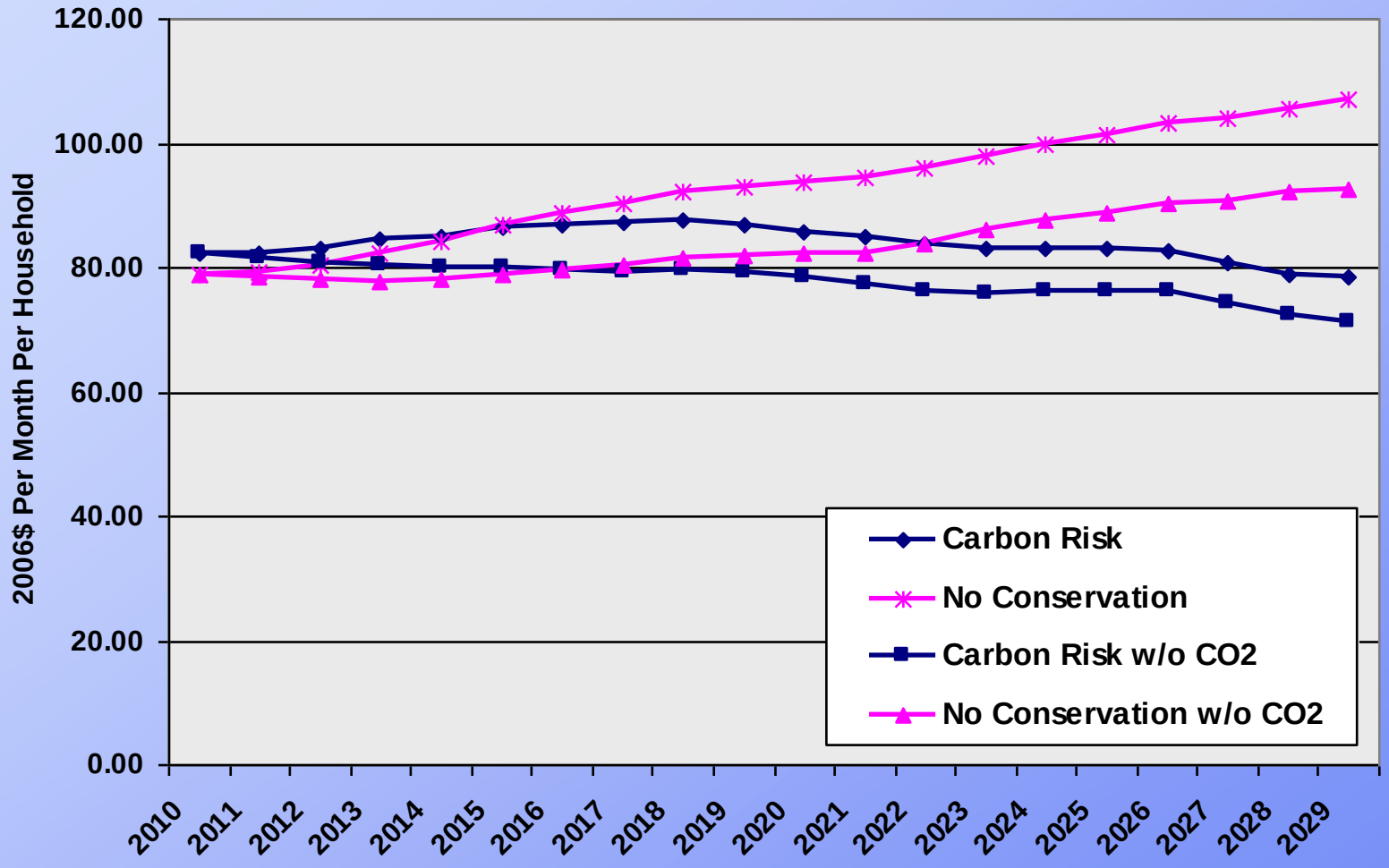
Effect of Carbon Tax on Bills:
Carbon Risk and No Conservation Scenarios



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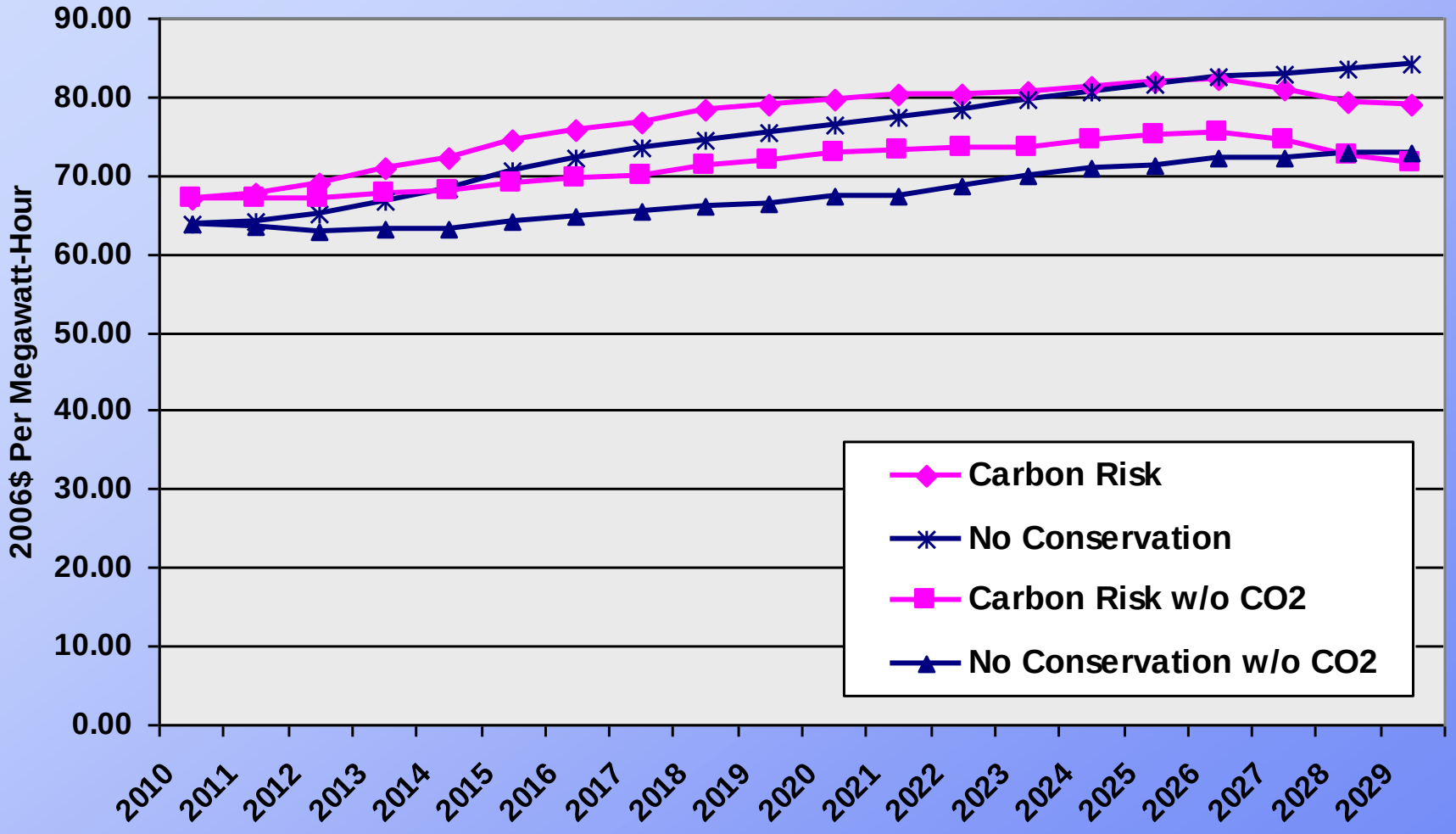
Prices for the Carbon Risk and No Conservation Scenarios: with and without carbon price



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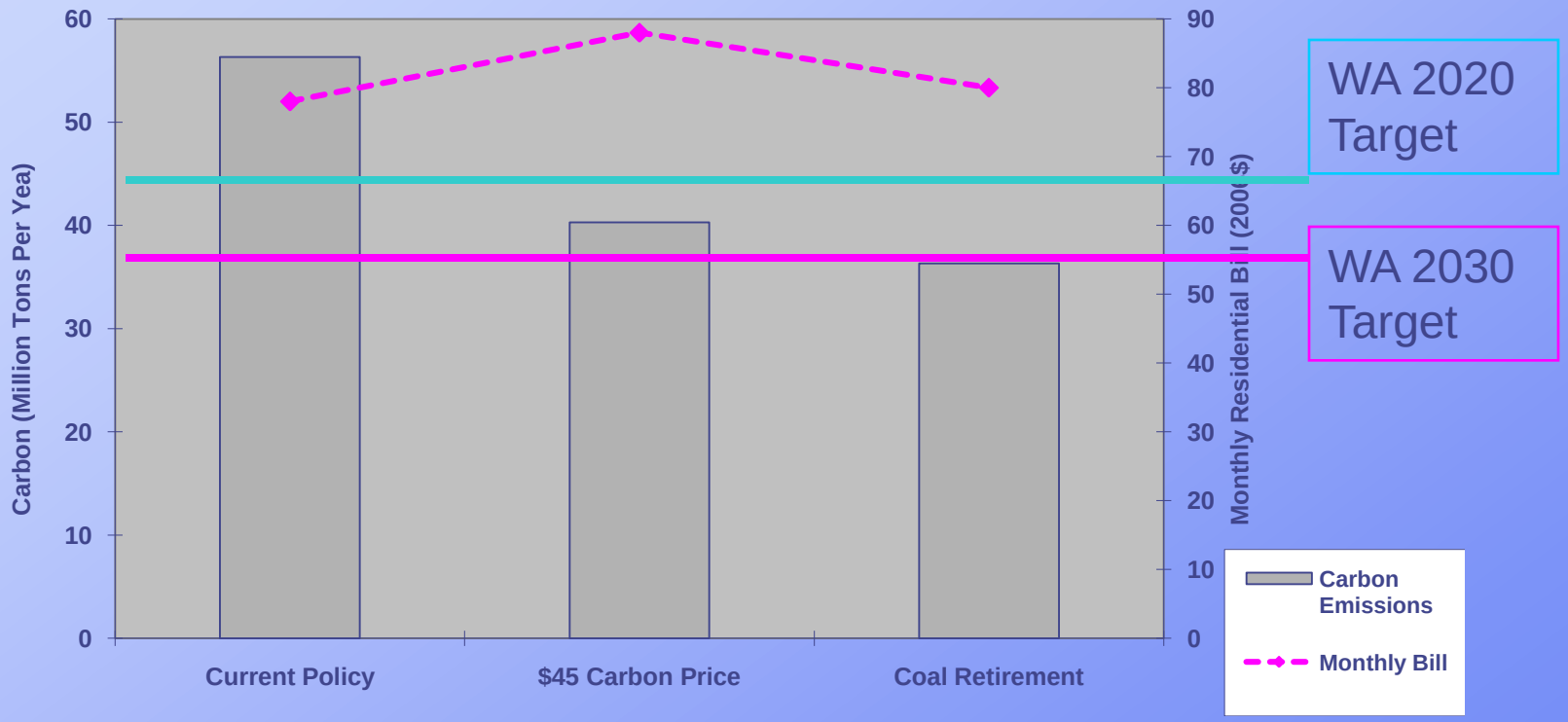
2030 Regional Power System Carbon Emissions and Levelized Consumers' Bills



Note the rates shown are levelized

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Summary

- Current rates* are about $70/MWH they are not expected to change significantly due to resource plans
- Cost of CO2 has a larger impact on rates than conservation expenditure.
- Current residential bills* are about $77 per household, On Average bills* are expected to decrease at 0.7% a year
- The actual Bills* and Rates will be different than depicted here.

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End of Slides

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Extra Slides

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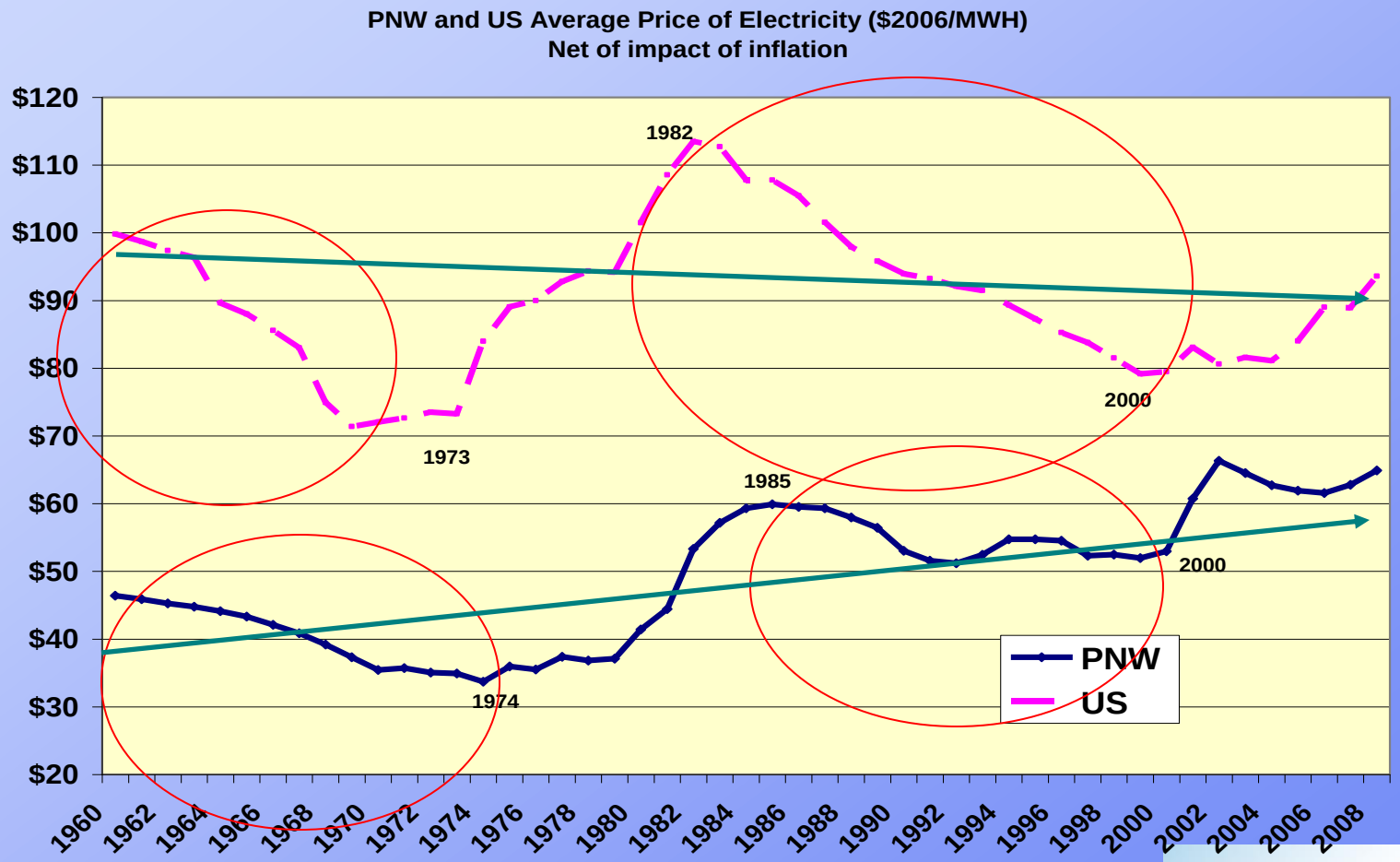
Examining Plan Trends in Prices and Bills

Power Committee

July 8, 2010

Web Conference

Trends in Real Price of Electricity



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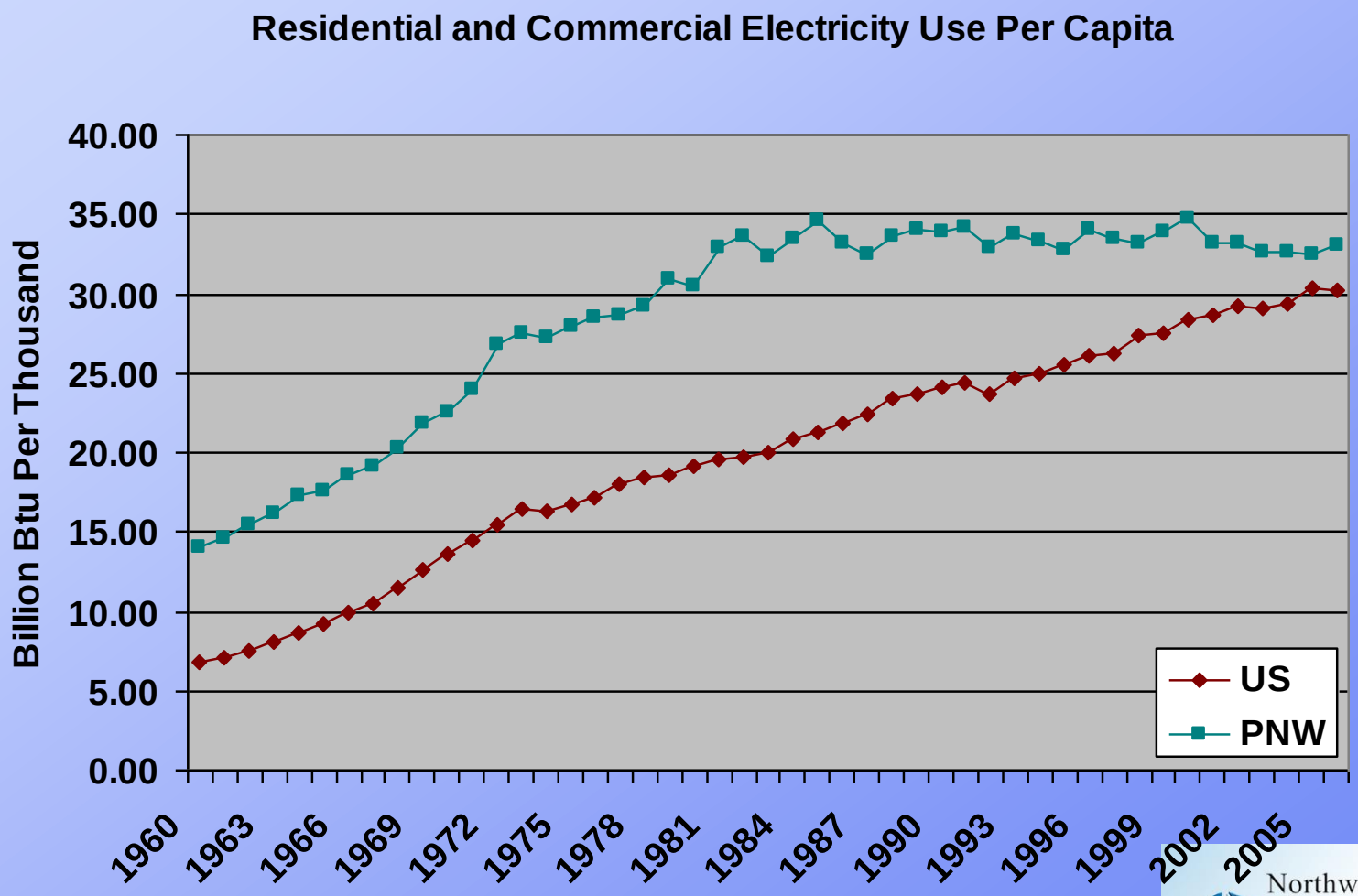
Use Per Capita Affects Bills



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Use Trends in the PNW are Affected by Fuel Switching

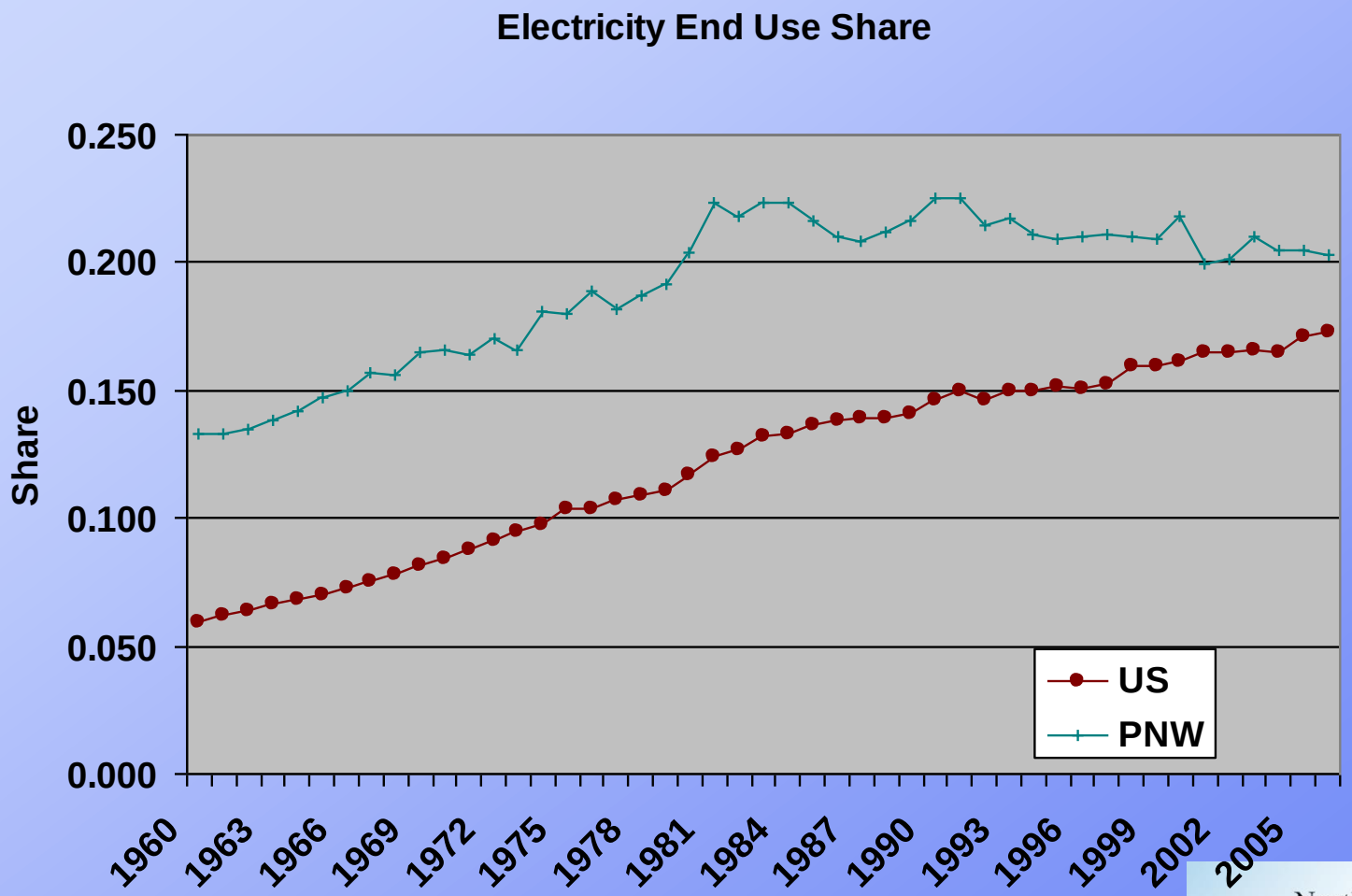

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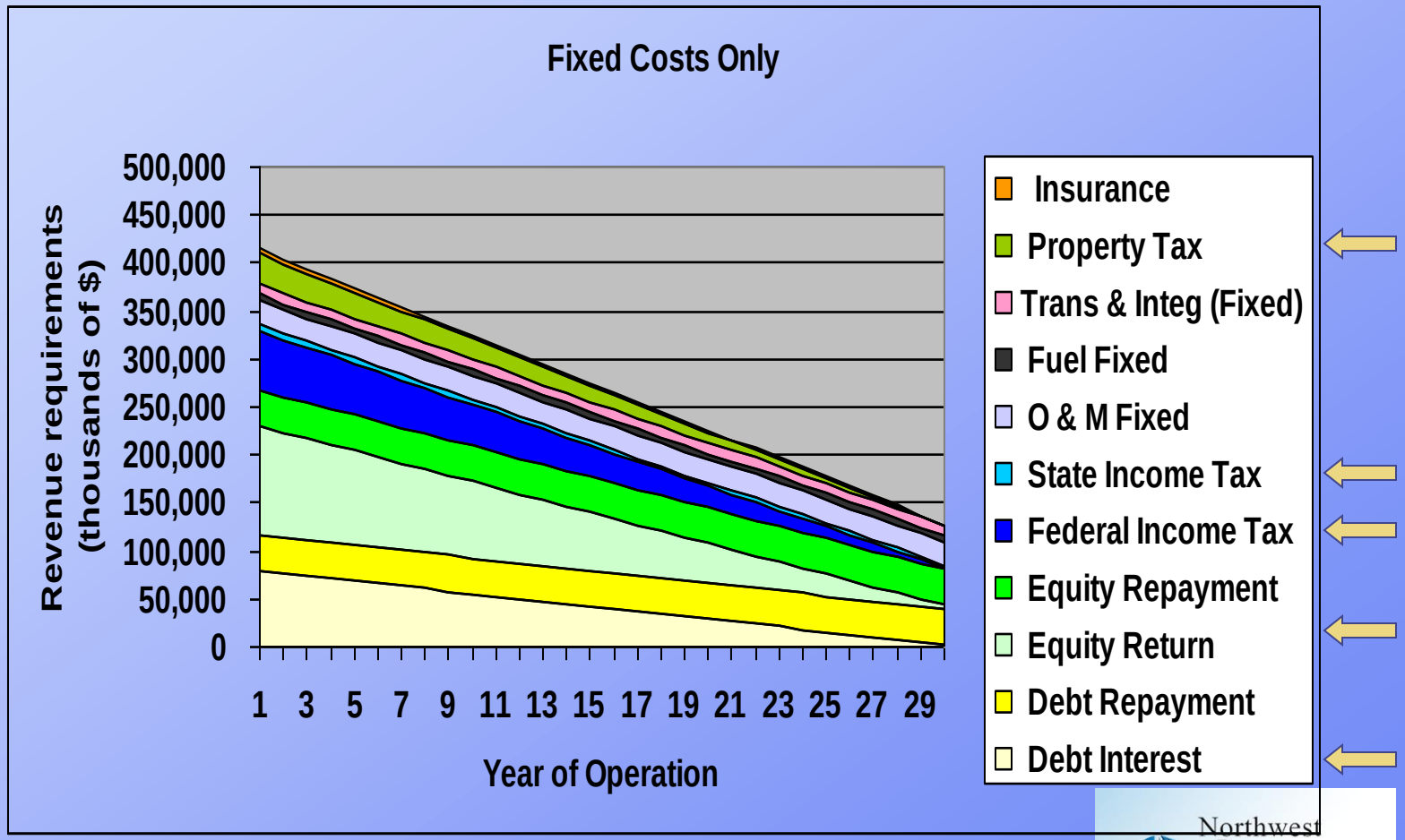
Illustration of Power Plant Fixed Costs Decreasing Over Time



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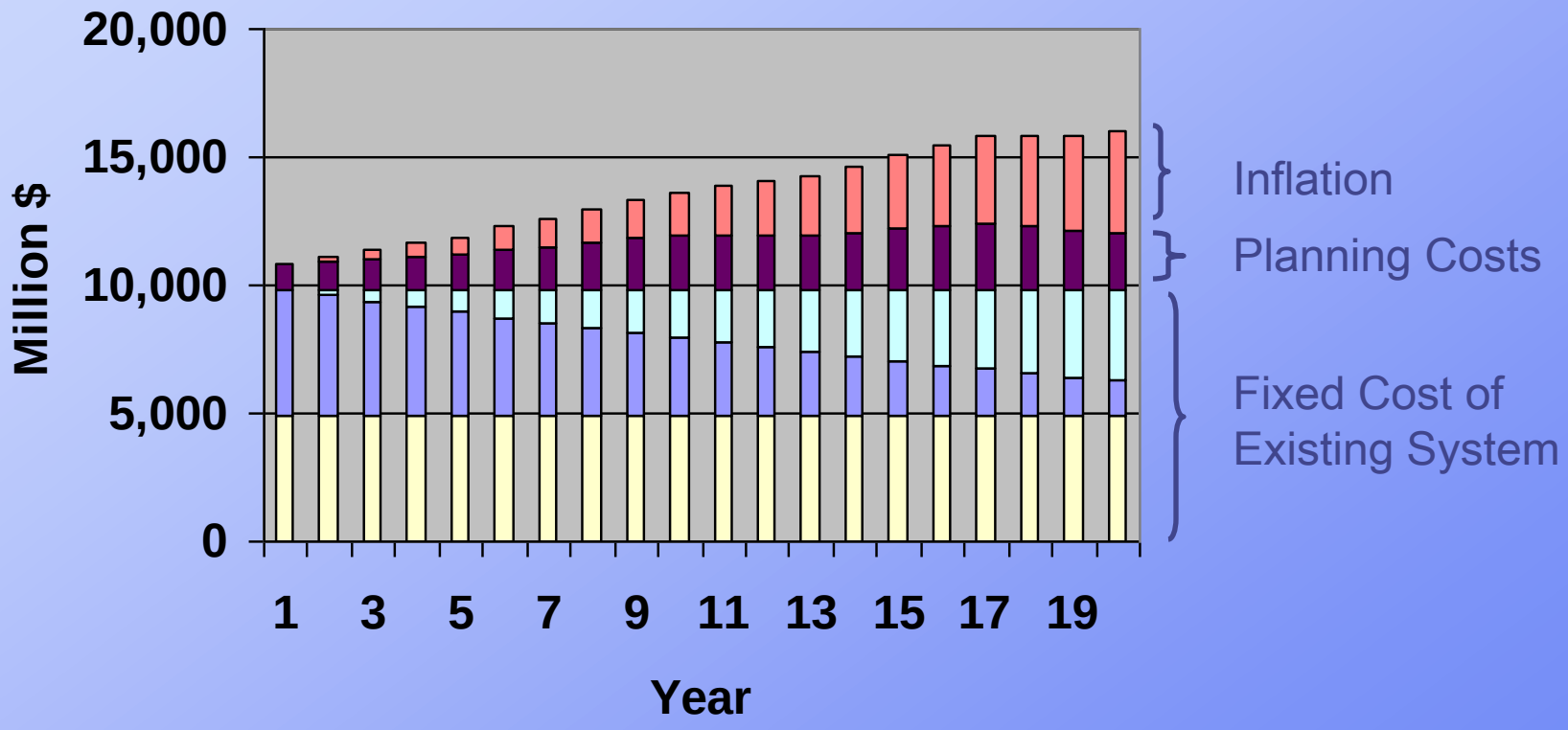
Revenue Requirements Over Time



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